

INDIANA Epidemiology NEWSLETTER



Epidemiology Resource Center
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Tuberculosis in Indiana, 2004

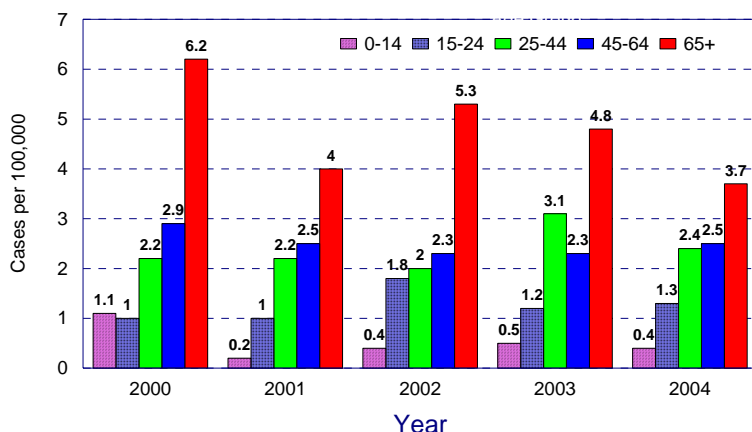
Paul Britton, R.N., M.S.
ISDH TB Control Program

March 24 is World TB Day. It was on this day in 1882 that German microbiologist Robert Koch discovered *Mycobacterium tuberculosis*, the bacterium that causes tuberculosis (TB). Tuberculosis continues to be one of the deadliest diseases in the world, with 8 million new cases and 3 million deaths reported worldwide each year. Approximately 95 percent of TB cases occur in developing countries where there are few resources to ensure adequate treatment and where HIV infection is common. TB is the number one killer of AIDS patients in the world.

TB cases have declined dramatically since the early 1950s. Indiana cases increased in 2002 and 2003 but declined in 2004. During 2004, 128 new cases of TB were reported to the Indiana State Department of Health (ISDH) by 34 of the 92 counties. The three most populous counties accounted for 53% of all new cases. A TB outbreak continued in Allen County, where 22 new cases were reported in 2004. Eleven of those cases were linked either epidemiologically or through matching genotypes from positive cultures. The vast majority of those have successfully completed treatment. Long-term trends and new cases over the past 10 years are shown in Figures 1 and 2, respectively.

Figure 1.

Tuberculosis Case Rates by Age Group 2000-2004



ISDH Tuberculosis Control Program

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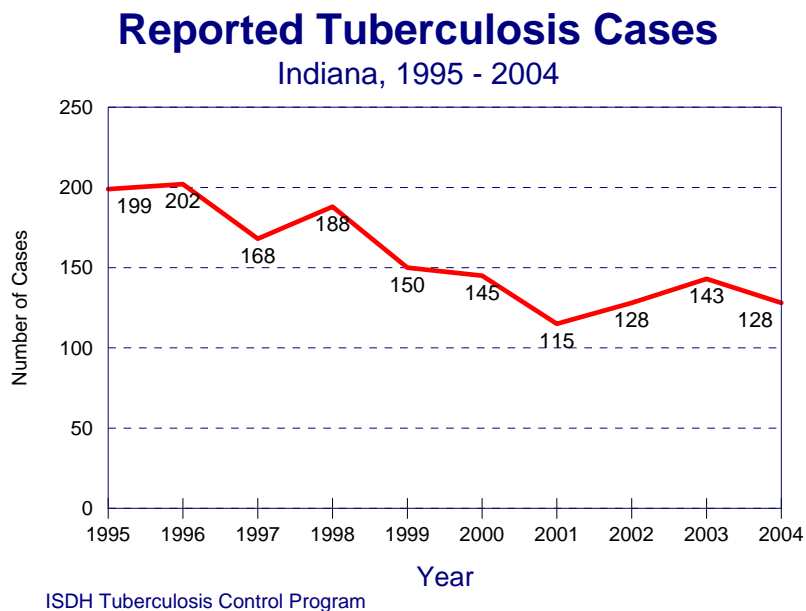
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Figure 2.



The majority of cases of TB disease develop in persons who were infected in the past. Approximately 10 percent of persons infected with TB will develop active disease at some point in their lives, but it is not possible to predict who will become ill or when. The foreign-born population continues to make up one-third of all of Indiana's new cases. Figure 3 shows the percentage of TB cases among the foreign-born versus U.S. born. Figure 4 shows the country of origin of the majority of foreign-born cases.

Figure 3.

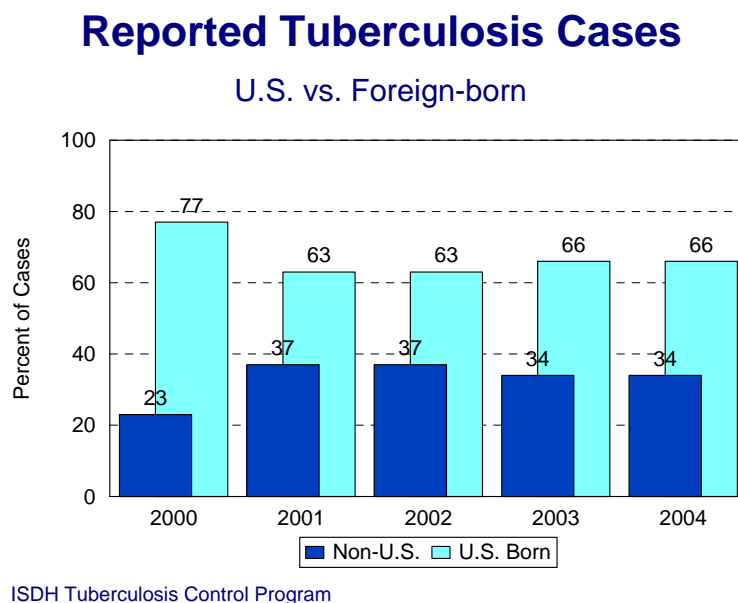
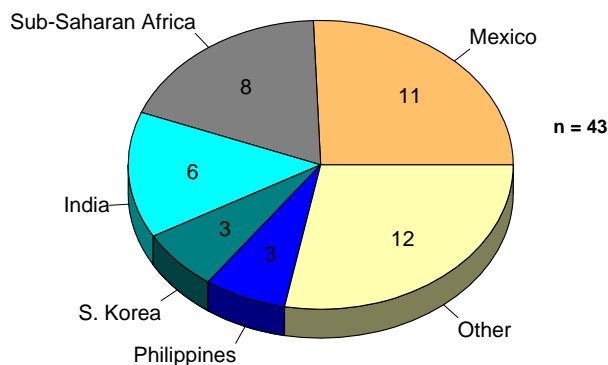


Figure 4.

Nationality of Non-U.S. Born TB Cases

Based on the Most Frequently Represented Countries and Regions in 2004



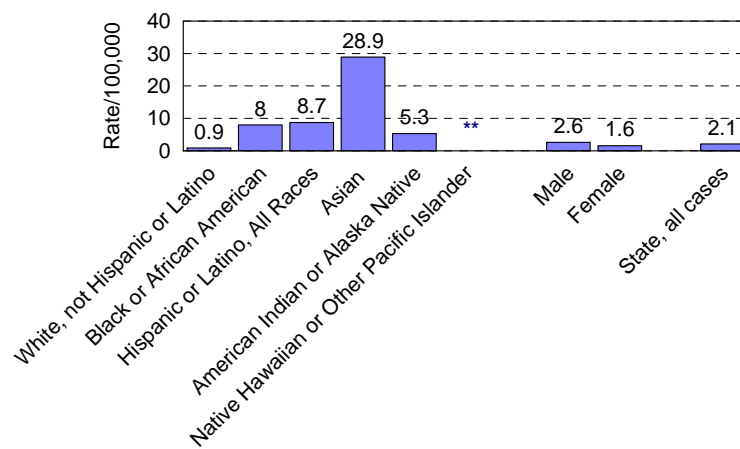
ISDH Tuberculosis Control Program

TB case rates by race, ethnicity, and sex are shown in Figure 5. Case rates by age group are shown in Figure 6.

Figure 5.

Tuberculosis by Race, Ethnicity, and Sex

Rate/100,000 for 2004

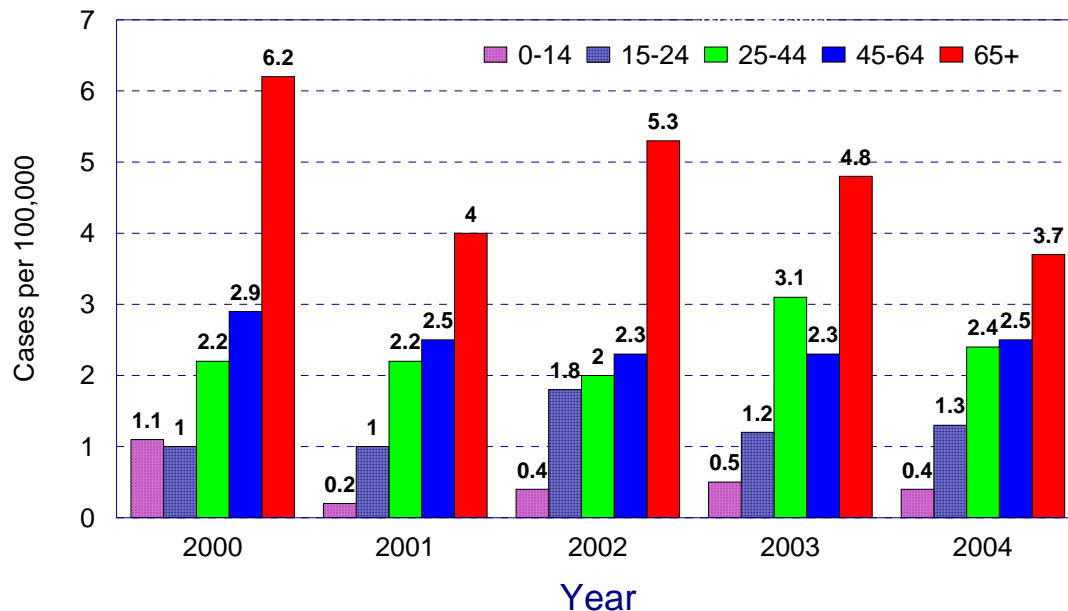


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** None reported or statistically insignificant

Figure 6.

Tuberculosis Case Rates by Age Group 2000-2004



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In December 2004, the U.S. Food and Drug Administration approved a new test for the detection of latent TB infection, QuantiFERON®-TB GOLD. This test replaces the first generation test that was approved for use in 2001. The ISDH issued guidelines and recommendations for its use in February 2005.

Maintaining the decline in new TB cases depends on the continued implementation of TB control core activities. The most important activity is the prompt identification and treatment of new TB cases and completion of therapy, followed by the identification and treatment of infected contacts and targeted testing and treatment of other persons likely to be infected. The last group includes persons born in countries where TB is common and persons belonging to socioeconomic groups who tend to live and socialize in settings where TB is transmitted. This group includes injection drug users, other substance abusers, and the homeless.

Finally, these activities are incorporated into a client-centered patient management system in which the local health department provides case management and physicians in private practice provide medical care. The ISDH TB Drug Program provides drugs at no cost to the patient. The ISDH Mycobacteriology Laboratory provides specimen processing, culture identification, and drug susceptibility testing at no cost to the patient or referring client laboratories. This integrated approach, combined with the use of directly observed therapy, helps to ensure that all TB patients are being managed appropriately and will complete treatment.

References:

1. Indiana State Department of Health Tuberculosis Information Management System Database.
 2. Institute of Medicine. *Ending Neglect: The Elimination of Tuberculosis in the United States*. 2000.
 3. Indiana State Department of Health. “Guidelines and Recommendations on the Use of QuantiFERON®-TB for the Diagnosis of Latent Tuberculosis Infection.”
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Statewide Infrastructure Developed for Electronic Transfer and Analysis of Data

Linda A. Jones, R.N., M.S.N.
ISDH Epidemiology Resource Center

The Indiana State Department of Health (ISDH) continues to develop a statewide infrastructure for electronic transfer and analysis of data from hospitals and other patient care institutions for the Public Health Emergency Surveillance System (PHESS). PHESS is Indiana’s syndromic surveillance program.

Syndromic surveillance can be defined as the collection and assessment of health-related data (primarily patient chief complaints) that:

- is “real time”;
- **precedes** diagnosis and lab results; and,
- identifies **sufficient probability** that a case or an outbreak will warrant a public health response.

IC 16-19-10-8 is the law that supports the collection of health-related information for counter-terrorism programs. The law states that:

- A health care provider or other entity that collects data shall report to the state in accordance with the rules adopted
- The State Health Department shall establish reporting, monitoring, and prevention procedures for data collected (on symptoms and health syndromes)

How does HIPAA relate to the collection of health-related data?

The final HIPAA rule does not preempt this mandate, and patient consent or authorization for hospitals to release patient health information to the ISDH is not required.

Emergency Department Pilot Program

Forty-four hospitals across Indiana have been selected for a pilot Emergency Department (ED) surveillance program. The goals for this program are:

- seamless electronic data transmission;
- integration of ED data with other surveillance data;
- and an automated analysis and alerts response system.

The ISDH has partnered with Regenstrief Institute, Indiana University, to connect information technology (IT)-ready hospitals into this pilot surveillance program. Pilot hospital selection was based on:

- presence of an ED;
- membership in the INPC network;
- geographic representation—approximately two (2) IT-ready hospitals were selected in each Public Health Preparedness District

The following hospitals and hospital systems have signed agreements to participate in the pilot program:

- Clarian Health System (4 hospitals) - Indianapolis
- Community Hospital System (5 hospitals) - Indianapolis
- Wishard Hospital - Indianapolis
- St. Francis Hospital and Health Centers (3 hospitals) - Indianapolis
- St. Vincent Hospitals (3 hospitals) - Indianapolis
- Union Hospital - Terre Haute
- West Central Community Hospital - Clinton
- Ball Memorial Hospital - Muncie
- Parkview Hospitals (5) - Fort Wayne
- Columbus Regional Hospital
- Floyd Memorial Hospital - New Albany
- St. Mary's Medical Center - Evansville
- Memorial Hospital of South Bend
- Terre Haute Regional Hospital
- Bloomington Memorial Hospital
- Major Hospital - Shelbyville
- St. Joseph Regional Medical Center (6 hospitals) - South Bend

Eight additional hospitals across Indiana are targeted for inclusion into the pilot program by March 2005:

- Deaconess Hospital - Evansville
- Methodist Northlake and Southlake (2 hospitals) - Lake County
- Community Hospital Foundation of Northwest Indiana (3 hospitals) - Lake County

Currently, the following hospitals submit “real time” chief complaint data to the ISDH:

- Clarian Health (IU, Riley, and Methodist)
- Columbus Regional Hospital
- Community Hospitals (East, North, South, and Indiana Heart Hospital)
- St. Francis Hospitals (Beech Grove, Indianapolis, and Mooresville)
- St. Vincent Hospitals (86th Street, Carmel, and St. Vincent's Children's)
- Union Hospital
- West Central Community
- Wishard Hospital

When the chief complaint data is received at ISDH, it is coded into one of the following categories: respiratory, gastrointestinal, constitutional, neurological, rash, botulinic, hemorrhagic, and “other” syndromes.

Future sources of data currently envisioned for the PHESS include:

- Schools
 - Ambulatory Care/Urgent Care Centers/Clinics
 - Third-Party Insurers (such as nurse hotlines)
 - Physician Offices
 - Veterinary Offices
-



OUTBREAK SPOTLIGHT....

“**Outbreak Spotlight**” is a regularly appearing feature in the *Indiana Epidemiology Newsletter* to illustrate the importance of various aspects of outbreak investigation. The event described below illustrates how routine reportable disease surveillance can indicate an outbreak and the potential for a seemingly small outbreak to become quite large.

Background

On November 8, 2004, a representative from the Porter County Health Department (PCHD) notified the Indiana State Department of Health (ISDH) that the health department had received an increased number (5) of confirmed *Salmonella type D* laboratory reports. Several of the cases had eaten at Restaurant A, which is located near a major interstate highway. The hours of operation are 6:00 a.m. to 10:00 p.m., seven days per week.

Approximately 30 more cases were identified over the next few days, including one from Wisconsin. The owners voluntarily closed the restaurant on November 9, 2004, pending further investigation.

Epidemiologic Investigation

The PCHD and the ISDH initiated a collaborative investigation of the outbreak. The ISDH developed a questionnaire that documented illness history and foods eaten on the days in question, which was then forwarded to the PCHD. PCHD staff members conducted interviews and completed questionnaires for the following groups: patrons reporting symptoms, employees with symptoms, employees with positive lab results, and patrons who did not become ill but had accompanied someone who did present symptoms (controls). Completed forms were forwarded to the District 1 ISDH field epidemiologist for analysis. A case was defined as any previously healthy person who ate or worked at Restaurant A and became ill with diarrhea and/or vomiting on or after October 24, 2004.

Thirty-five cases were identified. Eighteen were confirmed by positive stool cultures. The ISDH and the PCHD notified the Wisconsin Department of Health and Hygiene of one case who was a Wisconsin resident. Cases ranged in age from less than 1 year to 93 years of age, with the mean age being 46 years. The predominant symptoms included diarrhea (99%), cramps (86%), nausea (35%), headache (35%), vomiting (34%), blood in stool (23%), and fever (34%). Five cases were hospitalized. The median incubation was 24 hours (range: 6 to 72 hours).

Since the restaurant is located near a major interstate, outbreak information was posted on the Centers for Disease Control and Prevention (CDC) Epi-X Web site, a secure electronic information exchange. The PCHD also notified the local media.

Environmental Assessment

The PCHD inspected Restaurant A on November 8. Six critical violations were found, including the removal of a hand sink in the kitchen area. The restaurant voluntarily closed on November 9 until further details of the outbreak could be established.

All restaurant employees were requested to submit a stool specimen. Four employees cultured positive for *Salmonella enteritidis*. Although the restaurant was closed at the time the positive results were reported, these workers were not allowed to return to work until two consecutive stool samples, taken not less than 24 hours apart, were negative. Two of the positive employees were asymptomatic. The others had onset dates in early November after some patrons of the restaurant reportedly were ill. Two of the employees were classified as food handlers. One of the positive employees had begun employment at another establishment. The PCHD visited this second restaurant to discuss the restrictions for that employee and provide education on *Salmonella* infection and hand washing. No cases were reported at the second establishment.

Prior to reopening, the PCHD environmental staff conducted food safety training for Restaurant A staff and conducted another inspection of the restaurant on November 15. The hand sink was reinstalled and all critical violations were corrected. The restaurant reopened on November 16. The PCHD observed kitchen operations on the first day of reopening and found no violations. No further cases or complaints were reported.

Laboratory Results

The PCHD worked with Porter Hospital (Valparaiso campus) to collect and analyze stool samples, and results were forwarded immediately to PCHD staff. Eighteen cases, including four restaurant employees, tested positive for *Salmonella enteritidis*. Positive isolates were sent to the ISDH Laboratories, which forwarded them to the Michigan Department of Community Health Bureau of Laboratories for pulsed field gel electrophoreses (PFGE) testing. All isolates exhibited a common pattern, strongly indicating a common source.

No food samples were available for testing.

Conclusion

The investigation revealed that an outbreak of gastroenteritis occurred at Restaurant A between October 24 and November 9, 2004. The causative agent was *Salmonella enteritidis*. *Salmonella* is a bacterium that is most commonly found in the intestines of animals. People often become infected by eating foods contaminated with the bacteria, usually foods of animal origin, such as meats, poultry, and eggs, or by direct contact with these animals. *Salmonella* is also shed in the stool of infected cases. This can lead to transmission of the organism, person to person, via the contaminated hands of an individual or a contaminated object.

No particular food vehicle was identified as the source of this outbreak. The epidemic curve, which depicts onset dates of cases, indicates a continuous source, compatible with repeated or intermittent transmission. In several instances, the patrons ate the same meal on the same day; however, one would become ill and not the others. No common meal was identified as a source of illness among the symptomatic cases. However, four employees, two of whom were asymptomatic, tested positive for *Salmonella enteritidis*, with the same PFGE pattern as the ill patrons. Therefore, it is likely that illness may have been introduced by an asymptomatic employee and transmitted through intermittent shedding in the stool. The removal of the hand sink may have enhanced this

situation. It was also difficult to exclude ill employees from preparing and serving food, because at least two were asymptomatic and not identified until laboratory testing results became available.

The ISDH extends its appreciation for the quick response and professionalism demonstrated by the PCHD and Porter Hospital. Restaurant A employees and management staff were very cooperative during the investigation and voluntarily closed the restaurant until the investigation was completed. The timely actions taken by these organizations likely reduced the number of cases associated with this outbreak.

In general, most foodborne outbreaks of *Salmonella* can be avoided by strictly adhering to the following practices:

1. Thoroughly wash hands with soap and water before, during, and after food preparation.
2. Educate employees about proper hand washing after using the restroom.
3. Exclude employees from working while ill with diarrhea and/or vomiting until symptoms have ceased.
4. Thoroughly cook all food items derived from animal sources, particularly poultry, pork, egg products, and meat dishes.
5. Use separate utensils, equipment, and preparation surfaces for raw meats and eggs and ready-to-eat-foods, such as lettuce and vegetables.
6. Use pasteurized or irradiated egg products to prepare dishes in which eggs would otherwise be pooled before cooking or when the food item containing eggs is not subsequently cooked.
7. Store foods at proper refrigeration and holding temperatures.



Training Room

Indiana State Department of Health Immunization Program Presents: “Child and Adolescent Immunizations from A to Z”

The ISDH Immunization Program and Health Educators are offering this free, one-day educational course on all aspects of immunization practices. Topics include:

- Principles of Vaccination
 - Overview of the immune system
 - Classification of vaccines
- An Overview of Vaccine-Preventable Diseases
- General Recommendations on Immunization
 - Timing and spacing
 - Contraindications and precautions to vaccination
- Safe and Effective Vaccine Administration
 - Prior to administration
 - Administration
 - Documentation and reminder/recall
 - Adverse Events
- Safe Vaccine Storage and Handling
- Indiana Requirements
 - Schools
 - Daycare/Head Start
 - Exemptions
- Tools to Read Immunization Records
- Vaccine Misconceptions
 - MMR and autism
 - Thimerosal and mercury
 - Overloading the immune system
 - Influenza vaccine
- Reliable Resources

This course is designed for all immunization providers and staff. Presentation of this course takes six hours or can be customized to provide the components needed for your office or clinic staff. A training manual and certificate of attendance are provided to all attendees.

Courses are held throughout Indiana about four times per month. The schedule can be seen at www.in.gov/isdh/programs/immunization/ImmunizationTraining/Calendar.htm.

All persons involved in immunizations are encouraged to attend a course in their area. **Registration is required.** To attend or schedule/host a course in your area, or for more information on "Child and Adolescent Immunizations from A to Z" and other immunization education opportunities, please contact Beverly Sheets by calling (317) 501-5722 or e-mail hepbbev@aol.com.

Mark your calendars NOW!

Indiana Immunization Fall Awards Conferences:

When: **Sunday, Oct. 2, 2005**, "Reception with Speakers"
Monday, Oct. 3, 2005, "Conference"

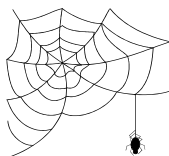
Time: 8:30 am to 3:30 pm

Where: Indianapolis Hilton, downtown.

Speakers: William Atkinson, MD, MPH
Information, Education and Partnership Branch National Immunization Program
Centers for Disease Control and Prevention

Patricia Stinchfield, RN, CNP
The Children's Immunization Project
St. Paul, Minnesota
(Newest member of the ACIP)

Check out the new ISDH Immunization Program Web site at <http://www.in.gov/isdh/programs/immunization.htm>.



Wonderful Wide Web Sites

ISDH Data Reports Available

The ISDH Epidemiology Resource Center has the following data reports and the Indiana Epidemiology Newsletter available on the ISDH Web Page:

http://www.in.gov/isdh/dataandstats/data_and_statistics.htm

Indiana Cancer Incidence Report
(1990, 95, 96, 97, 98, 99, 2000)

Indiana Mortality Report
(1999, 2000, 2001, 2002)

Indiana Cancer Mortality Report
(1990-94, 1992-96, 1999, 2000)

Indiana Natality Report
(1998, 99, 2000, 2001, 2002)

Indiana Health Behavior Risk Factors
(1999, 2000, 2001, 2002)

Indiana Induced Termination of Pregnancy Report
(1998, 99, 2000, 2001)

Indiana Health Behavior Risk Factors (BRFSS)
Newsletter (9/2003, 10/2003, 6/2004, 9/2004)

Indiana Marriage Report
(1995, 97, 98, 99, 2000)

Indiana Hospital Consumer Guide
(1996)

Indiana Infectious Disease Report
(1997, 98, 99, 2000, 2001)

Public, Hospital Discharge Data
(1999, 2000, 2001, 2002)

Indiana Maternal & Child Health Outcomes &
Performance Measures
(1990-99, 1991-2000, 1992-2001)

HIV Disease Summary

Information as of February 28, 2005 (based on 2000 population of 6,080,485)

HIV - without AIDS to date:

329	New HIV cases from March 2004 thru February 2005	12-month incidence	5.41 cases/100,000
3,626	Total HIV-positive, alive and without AIDS on February 28, 2005	Point prevalence	59.64 cases/100,000

AIDS cases to date:

365	New AIDS cases from March 2004 thru February 2005	12-month incidence	6.00 cases/100,000
3,685	Total AIDS cases, alive on February 28, 2005	Point prevalence	60.61 cases/100,000
7,544	Total AIDS cases, cumulative (alive and dead)		

REPORTED CASES

 of selected notifiable diseases

Disease	Cases Reported in February MMWR Week 5-8		Cumulative Cases Reported January -February MMWR Weeks 1-8	
	2004	2005	2004	2005
Campylobacteriosis	25	4	32	9
Chlamydia	1,667	1,551	2,856	3,148
<i>E. coli</i> O157:H7	2	1	5	1
Hepatitis A	1	1	5	2
Hepatitis B	2	1	2	1
Invasive Drug Resistant <i>S. pneumoniae</i> (DRSP)	14	10	24	16
Invasive pneumococcal (less than 5 years of age)	2	3	5	5
Gonorrhea	557	588	1,040	1,259
Legionellosis	3	2	3	2
Lyme Disease	0	1	0	1
Measles	0	0	0	0
Meningococcal, invasive	3	1	4	2
Pertussis	1	27	1	28
Rocky Mountain Spotted Fever	0	0	0	0
Salmonellosis	24	3	36	8
Shigellosis	4	7	6	7
Syphilis (Primary and Secondary)	3	3	8	7
Tuberculosis	13	11	26	16
Animal Rabies	0	0	0	1

**For information on reporting of communicable diseases in Indiana, call the
ISDH Epidemiology Resource Center at (317) 233-7125.**

Indiana
Epidemiology
Newsletter

The *Indiana Epidemiology Newsletter* is published by the Indiana State Department of Health to provide epidemiologic information to Indiana health professionals and to the public health community.

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